

# Guidance and Navigation Using Sun, Stars, and Light Video Recognition, Phase I

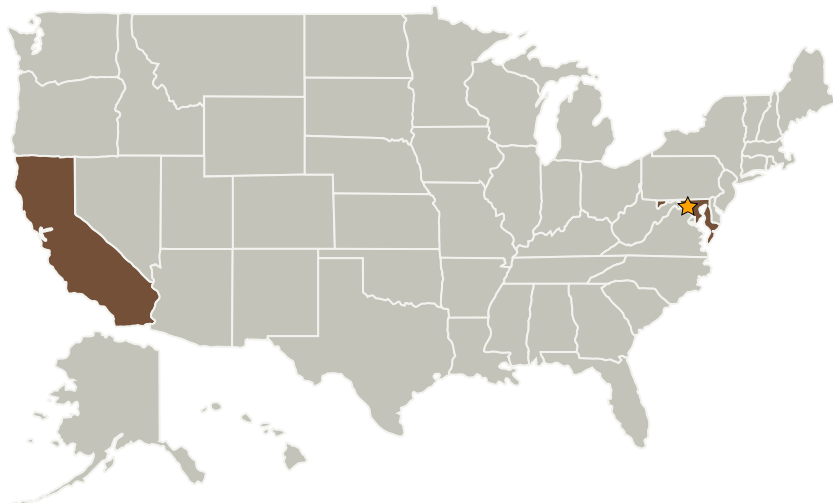
Completed Technology Project (2005 - 2005)



## Project Introduction

NASA requires innovative guidance, navigation and control (GN&C) technology that addresses the high performance, reliability, power and volume requirements of future Earth Science (ES) missions. Specifically, ES architectures will include platforms of varying size and complexity in a number of mission trajectories and orbits. Novel approaches for autonomous control of large fleets of spacecraft, rockets, balloons and Unmanned Aerial Vehicles (UAVs) are desired. Special interest is apportioned to augmenting and providing alternatives to GN&C, relative range and attitude determination during close formation, and proximity operations using video image processing technology. Broadata Communications, Inc. (BCI) proposes a novel vision-based attitude determination and relative range GN&C system called Guiding Stars, Sun and Light (GSSL). It is based on an innovative, real-time, video image, point distance set based, recognition technology that works well with the problem at hand.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Goddard Space Flight Center (GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Broadata Communications, Inc.	Supporting Organization	Industry	Torrance, California



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Goddard Space Flight Center (GSFC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

California

Maryland

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Matheos Kazantzidis

## Technology Areas

### Primary:

- TX09 Entry, Descent, and Landing
  - └ TX09.4 Vehicle Systems
    - └ TX09.4.7 Guidance, Navigation and Control (GN&C) for EDL